REMARKS

INTRODUCTION

In accordance with the foregoing, no claims have been amended. Claims 1-16 are pending and under consideration.

CLAIM REJECTIONS

Claims 1-6 and 8-15 were rejected under 35 USC 103(a) as being unpatentable over Kobayashi et al. (US 6,454,398) (hereinafter "Kobayashi") in view of Koitabashi et al. (US 5,216,450) (hereinafter "Koitabashi").

Claims 7 and 16 were rejected under 35 USC 103(a) as being unpatentable over Kobayashi in view of Koitabashi and further in view of Oda et al. (US 5,552,816) (hereinafter "Oda").

Claims 1-6 and 8-15 were further rejected under 35 USC 103(a) as being unpatentable over Kobayashi in view of Allen et al. (US 4,968,998) (hereinafter "Allen") and Oda.

Claims 7 and 16 were further rejected under 35 USC 103(a) as being unpatentable over Kobayashi in view of Allen and further in view of Oda.

Kobayashi

Kobayashi discusses an ink cartridge for an ink jet printer and method of charging ink into the cartridge. In Kobayashi, an ink supply port shaped to receive an ink supply needle of a recording head is arranged at the lower end of each of the respective foam chambers 411, 511 and 611, ink supply ports 413 and 513 of foam chambers 411 and 511. The opening of the container main body 1 is sealed with a cover member 16 that has exhausting through holes 414, 514 and 614 and ink injecting through holes 415, 515 and 615 at positions confronting the respective foam chambers 411, 511 and 611. Kobayashi, 3:17-3:26 and Figures 1a, 1b, 2a and 2b.

Koitabashi

Koitabashi discusses an ink jet head cartridge. In one embodiment of Koitabashi, a hollow buffer chamber 208 is formed near the central portion of the ink absorber 107, and a vent passage tube 209 is arranged to extend from substantially the central portion of the buffer chamber 208 to the atmosphere through the wall of the ink tank, and further, the porous member 112 is mounted on a vent opening 209A of the vent passage tube open to the atmosphere. Incidentally, the reference numeral 210 denotes a holder member for fixing the porous member 112 on the tank wall around the vent opening. Koitabashi, 7:43-7:53 and Figures 5A and 5B.

Oda

Oda discusses an ink tank, ink jet cartridge and ink jet recording apparatus. In Oda, the ink tank T attached to the tank holder 11 of the head cartridge H has a bottom wall 21, a frame-like side wall 22 extending upward from the bottom wall 21, and a top wall 23 for blocking the upper end of the side wall 22. The side wall 22 has an external shape so that it can be fitted to the internal shape of the side wall 13 of the tank holder 11. The internal volume of the ink tank T is formed in such a manner that the horizontally sectional area gradually increases from the lower portion to the upper portion thereof. The internal volume of the ink tank T at the upper end portion is kept constant regardless of the height. Oda, 8:52-8:62 and Figure 1.

Allen

Allen discusses a refillable ink jet print system. In Allen, after the print cartridge 10 has been used for printing, some portion of the originally charged liquid toner will have been consumed, depleting the foam piece 20. The foam piece 20 and the liquid toner container 14 are resupplied as follows. Liquid toner is forced under positive gauge pressure at a volumetric refill rate R_f into the exterior end 36 of the refill tube 26. This liquid toner flows down the interior of the refill tube 26 and out into the foam piece through the refill tube tip 28. A combination of air and liquid toner are simultaneously evacuated from the interior of the liquid toner container 14 under negative gauge pressure through the evacuation tube 30, at a volumetric evacuation rate R_e. The vent 24 maintains atmospheric pressure in the air space 21 during this process. It is important that the evacuation rate R_e be imposed on the evacuation tube 30. This is contrasted with, and is different from, the situation where air and liquid toner would be allowed to flow out the evacuation tube 30 at a rate that would simply maintain pressure equilibrium within the container 14. Allen, 5:18-5:37 and Figure 2.

Claims 1-7

Claim 1 recites: "...a foam chamber generating negative pressure, including a foam with an air passage formed from an upper end thereof toward a lower end, an ink filter and an ink head, wherein a part of a bottom of the foam chamber slopes down and the foam is disposed inside the foam chamber; an ink chamber storing ink, disposed at one side of the foam chamber and divided from the foam chamber by a partition having a connecting opening connecting the ink chamber with the foam chamber...." As stated in the Office Action, Kobayashi does not discuss an air passage formed from an upper end of the foam toward a lower end. The Examiner relies upon Koitabashi and Allen to supply this deficiency in Kobayashi. Claim 1 recites a foam chamber and an ink chamber. In contrast to claim 1, Koitabashi and Allen only disclose the foam chamber rather than the foam chamber and ink chamber recited in claim 1.

Further, the air passage of claim 1 is formed inside the foam, while the evacuation tube 30 of Allen is not. In Allen, the interior end 32 of the evacuation tube 30 simply contacts the upper free surface 34 of the foam piece 20. Similarly in contrast to claim 1, the vent passage tube 209 of Koitabashi is arranged to extend from the central portion of the buffer chamber 208 to the atmosphere through the wall of the ink tank.

For at least these reasons, it is respectfully submitted that claim 1 distinguishes over the cited references.

Claims 2-7 depend on claim 1 and are therefore believed to be allowable for at least the foregoing reasons. Further, claims 2-7 recite features that patentably distinguish Kobayashi, Koitabashi, Oda and Allen, taken alone or in combination. For example, claim 2 recites that the air passage is formed vertically and close to the partition.

Withdrawal of the foregoing rejection is requested.

Claims 8-16

Claim 8 recites: "...a cartridge defining an interior space having first and second chambers, the first chamber containing ink, and the second chamber containing foam and including a bottom sloping to an ink outlet; a partition, separating the chambers, including an opening through which ink flows into the second chamber; and an air passage in the foam from an upper end of the cartridge to a lower end, wherein the ink flows into the second chamber in response to the effect of negative pressure in the second chamber." In contrast to claim 8, as stated in the Office Action, Kobayashi does not discuss an air passage formed from an upper end of the foam toward a lower end. The Examiner relies upon Koitabashi and Allen to supply this deficiency in Kobayashi. In contrast to claim 8, Koitabashi and Allen only disclose the foam chamber, rather than the first chamber and second chamber recited in claim 8.

Further, the air passage of claim 8 is formed inside the foam, while the evacuation tube 30 of Allen is not. In Allen, the interior end 32 of the evacuation tube 30 simply contacts the upper free surface 34 of the foam piece 20. Similarly in contrast to claim 8, the vent passage tube 209 of Koitabashi is arranged to extend from the central portion of the buffer chamber 208 to the atmosphere through the wall of the ink tank.

For at least these reasons, it is respectfully submitted that claim 8 distinguishes over the cited references.

Claims 9-16 depend on claim 1 and are therefore believed to be allowable for at least the foregoing reasons. Further, claims 9-16 recite features that patentably distinguish Kobayashi, Koitabashi, Oda and Allen, taken alone or in combination. For example, claim 10 recites that the air passage is close to the partition.

Withdrawal of the foregoing rejection is requested.

CONCLUSION

In view of the foregoing remarks, it is respectfully submitted that each of the claims patentably distinguishes over the prior art, and therefore defines allowable subject matter. A prompt and favorable reconsideration of the rejection along with an indication of allowability of all pending claims are therefore respectfully requested.

If there are any additional fees associated with filing of this Response, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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